RANGE FLIGHT SAFETY SYSTEMS TRAINING COURSE
RANGE SAFETY OPERATIONS TRAINING COURSE

The second of three Phase II courses, *Range Flight Safety Systems*, was taught for the first time at Kennedy Space Center in September of 2007 with 15 students in attendance. The course size is limited by tours conducted at the Navy Trident trainer facility. The course describes required safety responsibilities and flight termination system procedures and plans. It also includes flight termination system component design, performance, test, and subsystem pre-launch requirements.

The module then transitions to the applicable flight termination system ground support and monitoring equipment, flight termination system analysis, and component test history. The course continues with a review of uninhabited aerial vehicle flight termination systems, balloon universal termination packages, and the enhanced flight termination system. The class concludes with a description of the autonomous flight safety system.

Prerequisites:
Completion of NSTC 074, *Range Safety Orientation*, or equivalent level of experience or training, is required
Completion of NSTC 002, *System Safety Fundamentals*, or NSTC 008, *System Safety Workshop*, is recommended

Target Audience:
NASA, Federal Aviation Administration, and Department of Defense Range Safety personnel working flight safety systems issues; range safety personnel in other disciplines; program/project managers and engineers who design potentially hazardous systems to operate on a range; personnel who conduct hazardous operations on a range

The *Range Flight Safety Systems* course outline is shown in the graphic below.

Range Safety Operations Course

Development of the *Range Safety Operations* course, the last of three Phase II advanced courses, should be completed in early 2007 and will be offered for the first time in July 2007. The course is managed by the NASA Safety Training Center and taught by several range safety operations professionals from NASA and other federal agencies involved in range safety. Unlike previous courses, this course will be taught at Wallops Flight Facility to take advantage of its range safety and control room facilities, as well as the mobile range safety system assets.

To ensure mission success and the safety of operations for the range, a formal process has evolved among the different ranges to provide range safety operations. This course focuses on the roles and responsibilities of the Range Safety Officer for range safety operations, as well as real-time support, including pre-launch, launch, flight, landing, and required mitigation actions.

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Launch commit criteria, mission rules, countdown activities, and display techniques are presented.

Additionally, tracking and telemetry, along with vehicle characteristics and range generation and checkout, will be covered in detail. Finally, post operations, lessons learned, and the use and importance of contingency plans will be discussed. Those participating in the course receive hands-on simulator training and exercises to reinforce range safety officer techniques and procedures to successfully conduct launch operations. Due to the unique interaction with real-world equipment, a maximum of six students may attend each class. Current forecasts are to offer this course annually; however more classes may be added based on need.

The course design document was completed in 2005. The course centers on the topics shown in the graphic below.

If you wish to take of any of the courses offered, please contact your Center training manager or refer to the NSTC web site course catalogue located at:
http://www6.jsc.nasa.gov/safety/calendar/NSTC/Docs/2007_Catalog.doc